Detailed Syllabus

Lecture-wise Breakup

Course Code	15B11MA211	**Semester** Even	**Semester** II **Session** 2018 -2019 **Month from** Jan 2019- June 2019
Course Name	Mathematics 2		
Credits	4	**Contact Hours**	3-1-0
Faculty (Names)	**Coordinator(s)**	Dr. Lokendra Kumar & Dr. Amita Bhagat	
	Teacher(s) (Alphabetically)	Dr. Anuj Bhardwaj, Prof. B.P. Chamola, Dr. D. C. S. Bisht, Dr. Neha Ahlawat, Dr. Neha Singhal, Dr. Pato Kumari, Dr. Priyanka Sangal, Prof. R.C. Mittal, Prof. Sanjeev Sharma, Dr. Sheetal Deshwal, Dr. Yogesh Gupta	

COURSE OUTCOMES		**COGNITIVE LEVELS**
After pursuing the above mentioned course, the students will be able to:		
C106.1	apply different methods for solving ordinary differential equations of second order.	Applying Level (C3)
C106.2	explain different tests/methods of convergence for infinite series.	Understanding Level (C2)
C106.3	find the series solution of differential equations and use it to construct Legendre's polynomials and Bessel's functions.	Applying Level (C3)
C106.4	classify the partial differential equations and apply Fourier series to find their solution.	Applying Level (C3)
C106.5	explain Taylor's & Laurent's series expansion, singularities, residues and transformations.	Understanding Level (C2)
C106.6	apply the concept of complex variables to solve the problems of complex differentiation and integrations.	Applying Level (C3)

Module No.	**Title of the Module**	**Topics in the Module**	**No. of Lectures for the module**
1.	Second Order Linear Differential Equations	Linear Differential Equations of Second Order with constant coefficients and with variable coefficients, Change of Variable, Variation of Parameters.	5
2.	Convergence of Series and Fourier Series	Convergence of series, Tests of convergence, Alternating Series, Absolute & Conditional Convergence, Uniform Convergence. Fourier Series.	7
3.	Series Solution and Special Functions	Series Solutions, Bessel Function, Recurrence Relations and Orthogonality. Legendre functions, Recurrence relations and Orthogonality.	7
4.	Partial	Classification and Solution of PDE, Equation of	5

	Differential Equations	vibrating string, Solution of one dimensional wave & heat equations.	
5.	Complex Variables	Limit, Continuity and Differentiability of Functions of Complex Variables, Analytic Functions, Cauchy's Riemann Equations.	3
6.	Complex Integration	Cauchy Integral Theorem, Cauchy Integral Formula and Applications.	4
7.	Series Expansion	Taylor and Laurent Series Expansion, Poles and Singularities.	4
8.	Contour Integration	Residues, Cauchy's residue theorem and its applications.	5
9.	Conformal Mapping	Bilinear transformation	2
Total number of Lectures			**42**

Evaluation Criteria

Components	**Maximum Marks**
T1	20
T2	20
End Semester Examination	35
TA	25 (Quiz, Assignments, Tutorials)
Total	**100**

Recommended Reading material:

1.	**Jain, R. K. &Iyenger, S. R. K.,** Advanced Engineering Mathematics, 3rd Ed., Narosa Publishing House, New Delhi, 2008.
2.	**Brown, J.W. & Churchill, R.V.,** Complex Variables and Applications, 6th Ed., McGrawHill, 1996.
3.	**Prasad, C.,** (a) Mathematics for Engineers (b) Advanced Mathematics for Engineers, Prasad Mudranalaya, 1982.
4.	**Kreysizg, E.,** Advanced Engineering Mathematics, 9th Edition, John Wieley& Sons, Inc., 2011
5.	**Simmons, G. F.,** Differential Equations with Applications and Historical Notes, 2nd Ed. McGraw Hill, 1991.
6.	**Spiegel, M.R.,** Complex Variables, Schaum's outline series, MacGraw-Hill, 2009.

Detailed Syllabus
Lecture-wise Breakup

Course Code	15B11PH211	**Semester: Even**	**Semester: II Session** 2018 -2019 **Month from: January to June**
Course Name	PHYSICS-2		
Credits	4	**Contact Hours**	4

Faculty (Names)	**Coordinator(s)**	Manoj Kumar & Suneet Kumar Awasthi
	Teacher(s) (Alphabetically)	Alok Pratap Singh Chauhan, Amit Verma, Anuj Kumar, Anuraj Panwar, Anshu Varshney, Bhubesh Chander Joshi, Dinesh Tripathi, Himanshu Pandey, Manoj Tripathi, Prashant Chauhan, R. K. Dwivedi, S. C. Katyal, Vikas Malik

COURSE OUTCOMES		**COGNITIVE LEVELS**
C102.1	Recall the basic concepts relating to electromagnetic theory, statistical physics, lasers, fiber optics and solid state physics.	Remembering (C1)
C102.2	Illustrate the various physical phenomena with interpretation based on the mathematical expressions involved.	Understanding (C2)
C102.3	Apply the basic principles in solving variety of problems related to lasers, electromagnet theory, fiber and solid state physics.	Applying (C3)
C102.4	Analyze and examine the solution of the problems using physical and mathematical concepts involved in the course.	Analyzing (C4)

Module No.	**Title of the Module**	**Topics in the Module**	**No. of Lectures for the module**
1.	Electromagnetism and Optical Fiber	Coulomb's law, Gauss law and its applications, Treatment of electrostatic problems by solution of Laplace and Poisson's equations, Biot-Savart law, Ampere's law, Maxwell's equations in free space and dielectric media. Electromagnetic waves, Derivations of expressions for energy density and energy flux (Poynting vector) in an electromagnetic field, Radiation pressure. Propagation of EM waves through boundary-Reflection, Refraction, Absorption and Total Internal Reflection. Light propagation in fibers and Graded Index fibers, Numerical Aperture and Attenuation, Single and Multimode.	17
2.	Statistical Distributions and Lasers	Maxwell-Boltzmann, Bose-Einstein and Fermi-Dirac distributions and their applications. Principle and working of laser, Einstein A and B coefficients, Ruby Laser.	09
3.	Solid State Physics	Basic ideas of bonding in solids, Crystal structure, Bragg's law X-ray diffraction, Band theory of solids, Distinction between metals, semiconductors and insulators. Electronic conduction in metals, Intrinsic and extrinsic (n and p-type) semiconductors and their electrical conductivity. p-n junction and Hall effect in semiconductors.	14
		Total number of Lectures	**40**
Evaluation Criteria			

Components	Maximum Marks
T1	20
T2	20
End Semester Examination	35
TA	25 [2 Quiz (10 M), Attendance (10 M) and Cass performance (5 M)]
Total	**100**

Recommended Reading material: Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)	
1.	D. J. Griffiths, Introduction to electrodynamics, Pearson India.
2.	G. Keiser, Optical Fiber Communications, Tata Mc Graw Hill Education.
3.	A. Beiser, Concepts of Modern Physics, Mc Graw Hill International.
4.	S. O. Pillai, Solid State physics, New Age International (P) Limited.
5.	B. G. Streetman & S. Banerjee, Solid State Electronic Devices, Prentice-Hall India.

Detailed Syllabus
Lecture-wise Breakup

Course Code	**15B11EC111**	**Semester - Even**	**Semester** II **Session** 2018 -2019 **Month from** Jan **to** June
Course Name	**Electrical Science -1**		
Credits	**4**	**Contact Hours**	4

Faculty (Names)	**Coordinator(s)**	Ms Monika (JIIT – 62), Dr Ashish Gupta (JIIT – 128)
	Teacher(s) (Alphabetically)	Dr Ankit Garg, Mr Atul Kumar Srivastava, Mr Gopal Rawat, Dr Kaushal Nigam, Dr Neetu Joshi, Dr Rachna Singh, Dr Reema Budhiraja, Mr Ritesh Sharma, Dr Sajaivir Singh, Dr Shruti Kalra, Dr Vijay Khare, Dr Vimal Kr. Mishra

COURSE OUTCOMES		**COGNITIVE LEVELS**
CO1	Recall the concepts of voltage, current, power and energy for different circuit elements.	Remembering (Level I)
CO2	Apply the Kirchhoff laws to identify the node voltages and branch currents, apply different network theorems in the complex networks.	Applying (Level III)
CO3	Demonstrate the physical model for given Sinusoidal AC signal and construct the phasor diagrams.	Applying (Level III)
CO4	Explain V-I characteristics of Diodes and Illustrate the construction and operation of Bipolar Junction Transistor (BJT) for different configurations.	Analyzing (Level IV)

Module No.	**Title of the Module**	**Topics in the Module**	**No. of Lectures for the module**
1.	Basic Concepts	Voltage, Current, Power and Energy analysis for Circuit elements (R, L, C), Independent and Dependent Sources, Kirchhoff's Laws, Voltage Divider rule, Current Divider rule, Star-Delta Transformation, Source transformation,	6
2.	DC Circuit Analysis	Mesh and Supermesh Analysis, Nodal and super nodal Analysis,	4
3.	Network Theorems	Superposition Theorem, Thevenin's Theorem, Norton's Theorem, Maximum Power Transfer Theorem	6
4.	Sinusoidal Steady State Analysis	Physical Model for a Sinusoid, Average Value, Effective Value, Phasor presentation, Addition of Phasor using Complex Numbers, Concepts of impedance and admittance. Network Analysis and Theorems: Mesh and Nodal analysis, Superposition Theorem, Thevenin's Theorem, Norton's Theorem, Maximum Power Transfer Theorem	8
5.	Diodes & Applications	PN Junction, Biasing the PN Junction, Current–Voltage Characteristics of a PN Junction, PN Junction Diodes, Half Wave Rectifier & Full Wave Rectifier, Clipper & Clamping Circuits, Zener Diodes and applications, Line and load regulations	8
6.	Bipolar Junction Transistor	Transistor Construction and Basic Transistor Operation, Transistor Characteristics (CE, CB, CC), Transistor Biasing	11

		& Stability, Small Signal BJT Amplifier (using h-parameter model)	
			Total number of Lectures **43**

Evaluation Criteria

Components	**Maximum Marks**
T1	20
T2	20
End Semester Examination	35
TA	25 (Assignment = 12, Quiz = 5, Attendance = 8)
Total	**100**

Recommended Reading material: Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)

1.	R.C. Dorf and James A. Svoboda, "Introduction to Electric Circuits**",** sixth edition, John Wiley & Sons.
2.	Robert L. Boylestad, Louis Nashelsky, " Electronic Devices and Circuit Theory ", 7th Edition, Prentice Hall of India.

Detailed Syllabus

Course Code	15B11CI211	**Semester** Even **(specify Odd/Even)**	**Semester** 2nd **Session** 2018 - 2019 Month from January to May
Course Name	Software Development Fundamental - 2		
Credits	4	**Contact Hours**	3 (L)+ 1 (T)

Faculty (Names)	**Coordinator(s)**	Dr. Aparajita Nanda, Sarishty Gupta
	Teacher(s) (Alphabetically)	Aditi Sharma, Aparajita Nanda, Arpita Jadhav Bhatt, Manju, Monali Mavani, Sakshi Aggarwal, Sangeeta , Sarishty Gupta, Sonal

COURSE OUTCOMES		**COGNITIVE LEVELS**
CO1	Develop C programs using structures, pointers, functions, and files.	Apply Level (C3)
CO2	Solve problems related to data storage, retrieval, searching, and sorting by utilizing stack/queue.	Apply Level (C3)
CO3	Make use of linked list to solve various problems.	Apply Level (C3)
CO4	Apply binary tree data structure to perform operations like searching, insertion, deletion, and traversing.	Apply Level (C3)
CO5	Explain basic features of object-oriented design such as objects, classes, encapsulation, polymorphism, inheritance, and abstraction	Understand Level (C2)
CO6	Develop C++ programs using OOPs concepts like encapsulation, Inheritance, Polymorphism, and Standard Template Library.	Apply Level (C3)

Module No.	**Title of the Module**	**Topics in the Module**	**No. of Lectures for the module**
1.	Advanced C programming	Revision of Functions, Pointers, Pointer arithmetic, Handling 1 D and 2 D array using its pointer notation, sending these in function, Handling structures using pointer. FILE handling (binary and text), Linear and binary search, insertion, selection, and bubble sort.	14
2.	Implementations and applications of elementary data structures	Stacks, Stack and Stack applications (array based implementation. Queue and queue applications, Circular Queue and Deque using array, Linked list, Link list application, link list based storage, sparse matrix, Binary trees, Binary tree Implementation: array and pointer based	15
3.	Object Oriented Programming	Introduction to of Object-Oriented Programming using C++, objects, classes, methods, implementing functions in the class, use of scope resolution operator, Access Modifiers, static functions and static data members, constructor and destructors, Inheritance: single, multiple, multi-level and hybrid, Polymorphism: function and operator overloading, virtual member functions, abstract base classes and pure virtual functions, Introduction to SDLC.	16

Total number of Lectures	**45**

Evaluation Criteria

Components	**Maximum Marks**
T1	20
T2	20
End Semester Examination	35
TA	25 (Assignments (10) +Attendance & Class Performance (10)+ Tutorial (5))
Total	**100**

Recommended Reading material: Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)

1.	H. Cooper and H. Mullish, Jaico Publishing House. "Spirit of C", 4th Edition, Jaico Publishing House, 2006
2.	Herbert Schildt. "The Complete Reference C ", 4th Edition, TMH, 2000
3.	Brian W. Kernighan and Dennis M. Ritchie ,"The C Programming Language", 2nd Edition, Prentice-Hall India, New Delhi, 2002
4.	Ellis Horowitz, Sartaj Sahni Fundamentals of Data Structures in C, 2008, Silicon press
5	E Balaguruswamy , Object Oriented Programming With C++ , 4th Edition , TMH, 2008
6.	Manuals provided by the department

Detailed Syllabus
Lab-wise Breakup

Course Code	15B17PH271	**Semester** Even	**Semester** II **Session** 2018 -2019 **Month: from** Jan-June
Course Name	Physics Lab-2		
Credits	1	**Contact Hours**	2

Faculty (Names)	**Coordinator(s)**	Vivek Sajal and Anshu Varshney
	Teacher(s) (Alphabetically)	Alok Pratap Singh Chauhan, Amit Verma, Anuj Kumar, Anuraj Panwar, Bhubesh Chander Joshi, D. K. Rai, Dinesh Tripathi, Himanshu Pandey, Manoj Kumar, Manoj Tripathi, N. K. Sharma, Navendu Goswami, Prashant Chauhan, S. C. Katyal, Sandeep Chhoker, Swati Rawal, Vikas Malik,

COURSE OUTCOMES		**COGNITIVE LEVELS**
C171.1	Recall laser, fibre optics, semiconductor and solid state physics principles behind the experiments.	Remembering (C1)
C171.2	Explain the experimental setup and the principles involved behind the experiments performed.	Understanding (C2)
C171.3	Plan the experiment and set the apparatus and take measurements.	Applying (C3)
C171.4	Analyze the data obtained and calculate the error.	Analyzing (C4)
C171.5	Interpret and justify the results.	Evaluating (C5)

Module No.	**Title of the Module**	**List of Experiments**	**CO**
1.	Semiconductor Physics	**1(a)** To determine the band gap in a semiconductor using its p-n junction diode. **1(b)** To draw the I-V characteristic of Solar cell and find maximum power and fill factor. **2(a)** To measure resistivity of semiconductor at different temperatures by Four Probe Method. **2(b)** To determine Band Gap of the semiconductor. **3(a)** To study the Hall effect in semiconductor and to determine its allied coefficients. **3(b)** To study the magneto resistance of given semiconductor material.	1-5
2.	Solid State Physics	**4.** To study the Magnetostriction in metallic rod with the help of Michelson interferometer arrangement. **5.** To find the susceptibility of a paramagnetic substance ($FeCl_3$) in the form of liquid or a solution. **6.** Study of dielectric (constant) behavior and determination of Curie's temperature of ferroelectric ceramics.	1-5
3.	Modern Physics	**7(a)** To determine the value of specific charge (e/m) of an electron by Thomson's method. **(b)** To determine the velocity of ultrasonic wave in the medium of liquid using ultrasonic interferometer and to determine the compressibility of the given liquid. **8.** To determine the value of specific charge (e/m) of an electron by Magnetron method.	1-5

		9(a) To determine Planck‟s Constant using LEDs of known wavelength. **(b)** To study the photovoltaic cell and hence verify the inverse square law.	
4.	Optical Fiber	**10(a)** To determine the numerical aperture of a given multimode optical fiber. **(b)** To measure the power loss at a splice between two multimode fibers and to study the variation of splice loss with Longitudinal and Transverse misalignments of the given fibers.	1-5

Evaluation Criteria

Components	**Maximum Marks**
Mid Term Viva (V1)	20
End Term Viva (V2)	20
D2D	60
Total	**100**

Recommended Reading material: Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)

1.	Dey and Dutta, Practical Physics
2.	Lab Manuals

Detailed Syllabus
Lab-wise Breakup

Course Code	**15B17EC171**	**Semester** Even **(specify Odd/Even)**	**Semester** II, **Session** 2018 -2019 **Month from** January to May
Course Name	Electrical Science Lab-1		
Credits	**1**	**Contact Hours**	2

Faculty (Names)	**Coordinator(s)**	Ritesh Kr Sharma (sec-62), Vimal Kumar Mishra (sec-128)
	Teacher(s) (Alphabetically)	Jitendra Mohan, Ankit Garg, Ankur Bhardwaj, Atul Kumar Srivastava, Jasmine Saini, Neetu Joshi, Ritesh Kumar Sharma, Shamim Akhter Shradha Saxena, shruti kalra, Vikram Karwal, Vishal Narain Saxena, Vijay Khare

COURSE OUTCOMES		**COGNITIVE LEVELS**
CO1	Show the working of different electronic apparatus and to identify the electronic components.	Remembering C1
CO2	Demonstrate the electrical circuits using Kirchhoff's law	Understanding C2
CO3	To acquire the knowledge of network theorems for analysis of electrical circuits	Applying C3
CO4	Explain the characteristics of PN junction, Zener diode and analyze the behavior of full/half wave rectifier, clippers, clampers and voltage regulator circuits.	Analyzing C4
CO5	Explain and analyze the input and output characteristics of BJT.	Analyzing C4

Module No.	**Title of the Module**	**List of Experiments**	**CO**
1.	Introduction of active and passive components	Introduction to various components (Resistor, Capacitor, inductor, diode, Transistor and IC) and instruments (CRO, Multimeter, Bread board, Regulated D.C. power supply).	1
2.	Analysis and verifications of Kirchoff's Laws	Verification of KVL and KCL using a given circuit	2
3.	Analysis and verification of Superposition Theorem	Verification of Superposition Theorem for a given circuit	3
4.	Analysis and verification of Thevenin's Theorem	Verification of Thevenin's Theorem for a given circuit	3
5.	Analysis and verification of Maximum Power Transfer Theorem	Verification of Maximum Power Transfer Theorem	3
6.	Study of P-N Junction diode	To observe the V-I characteristics of a P-N junction diode in forward bias. Also determine forward resistance of the diode	4

7.	Study and analysis of Rectifier	To observe the output waveform of full wave rectifier and calculate it's ripple factor and efficiency	4
8.	Wave-shaping using Clipper and Clamper circuits	Realization of desired wave shapes using clipper and clamper circuits.	4
9.	Study and analysis of Zener diode	To study forward and reverse bias volt-ampere characteristics of a Zener diode. Also determine the breakdown voltage, static and dynamic resistance	4
10.	Analysis of Zener regulator for line regulation	To study Zener voltage regulator and calculate percentage regulation for line regulation	4
11.	Analysis of Zener regulator for load regulation	To study Zener voltage regulator and calculate percentage regulation for load regulation	4
12.	Study and analysis of input characteristics of CE amplifier	To plot input characteristics of BJT for Common Emitter Configuration	5
13.	Study and analysis of output characteristics of CE amplifier	To plot output characteristics of BJT for Common Emitter Configuration	5
14.	Study and analysis of input characteristics of CB amplifier	To plot input characteristics of BJT for Common Base Configuration	5
15.	Study and analysis of output characteristics of CB amplifier	To plot output characteristics of BJT for Common Base Configuration	5

Evaluation Criteria

Components	**Maximum Marks**
Mid Sem. Viva	20
End Sem. Viva	20
Day to Day Work	60
Total	**100**

Recommended Reading Material:

1.	Boylestad, R.L., Nashelsky, L. and Li, L., 2002. *Electronic devices and circuit theory* (Vol. 11). Englewood Cliffs, NJ: Prentice Hall.
2.	Dorf, R.C. and Svoboda, J.A., 2010. *Introduction to electric circuits*. John Wiley & Sons.

Detailed Syllabus

Course Code	**15B17CI271**	**Semester : Even**	**Semester 2nd Session 2018 - 2019** Month from Jan-May 2019
Course Name	**Software Development Fundamental – 2 LAB**		
Credits	**1**	**Contact Hours**	**2**

Faculty (Names)	**Coordinator(s)**	**Sakshi Agarwal, Somya Jain**
	Teacher(s) (Alphabetically)	Aditi Sharma, Aparajita Nanda, Arpita Jadhav, Dhanalekshmi G., K. Rajalakshmi, Parul Agarwal, Pawan Upadhyay, Prantik Biswas, Purtee Kohli, Sakshi Agarwal, Sarishty Gupta, Shardha Porwal, Somya Jain

COURSE OUTCOMES		**COGNITIVE LEVELS**
CO1	**Make use of structures, pointers, functions, and files to build basic C programs.**	**Apply (level 3)**
CO2	**Construct stack/queue based solutions for data storage, retrieval, searching, and sorting problems.**	**Apply (level 3)**
CO3	**Apply linked list data structure to solve problems like polynomial operations and sparse matrix representation.**	**Apply (level 3)**
CO4	**Build operations like searching, insertion, deletion, traversing on binary tree data structure.**	**Apply (level 3)**
CO5	**Demonstrate fundamental concepts of object-oriented programming i.e. objects, classes, encapsulation, polymorphism, inheritance, and abstraction.**	**Understand (level 2)**
CO6	**Apply object-oriented programming features like encapsulation, Inheritance, Polymorphism, and Standard Template Library to construct C++ programs.**	**Apply (level 3)**

Module No.	**Title of the Module**	**List of Experiments**	**CO**
1.	Structures	Write C programs to store heterogeneous data and perform basic queries over it.	CO1
2.	Pointers & Functions	Write C programs using pointers and recursive functions like palindrome, factorial, fibonacci series, number system etc.	CO1
3.	File Handling & Dynamic Memory Allocation	Write menu driven C programs to perform basic file operations (create, read, write, update).	CO1
4.	Searching & Sorting	Write C programs to perform searching (Linear and binary) and sorting (Insertion, bubble, selection) on set of n numbers, strings using runtime input or stored input from a file.	CO2
5.	Stacks	Write C programs using LIFO concept such as push an	CO2

		element, pop an element, display status of the stack and arithmetic expressions evaluation and representations.	
6.	Queue	Write programs in C to perform operations on queues using array implementation.	CO2
7.	Linked List	Write programs in C to perform basic operations (add, delete, search etc.) via linked list representation.	CO3
8.	Binary Tree	Write programs in C to implement binary tree properties (traversal, leaf node identification, height etc.) using array and linked list representation.	CO4
9.	Introduction to C++ : Classes and Objects	Understand fundamental concepts of OOPs i.e. objects, classes, constructor, destructor, friend function through output based C++ programs.	CO5
10.	Object oriented programming Concepts	Write programs in C++ using OOPs concept like encapsulation, Inheritance, Polymorphism and Abstraction.	CO6

Evaluation Criteria

Components	**Maximum Marks**
Lab Test -1	**20**
Lab Test -2	**20**
Lab Evaluations	**20**
Project	**25**
Attendance	**15**
Total	**100**

Recommended Reading material: Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)

1.	H. Cooper and H. Mullish, Jaico Publishing House. “Spirit of C”, 4th Edition, Jaico Publishing House, 2006
2.	Herbert Schildt. “The Complete Reference C ”, 4th Edition, TMH, 2000
3.	Brian W. Kernighan and Dennis M. Ritchie ,“The C Programming Language”, 2nd Edition, Prentice-Hall India, New Delhi, 2002
4.	Ellis Horowitz, Sartaj Sahni Fundamentals of Data Structures in C, 2008, Silicon press
5.	E Balaguruswamy , Object Oriented Programming With C++ , 4th Edition , TMH, 2008
6.	Manuals provided by the department on \\fileserver2

Detailed Syllabus
Lab-wise Breakup

Course Code	18B15GE111	**Semester** Even **(specify Odd/Even)**	**Semester** II[nd] **Session** 2018 -2019 **Month from** January
Course Name	Engineering Drawing and Design		
Credits	1.5	**Contact Hours**	3Hrs

Faculty (Names)	**Coordinator(s)**	Rahul Kumar
	Teacher(s) (Alphabetically)	Deepak Kumar, Rahul Kumar

COURSE OUTCOMES		**COGNITIVE LEVELS**
CO1	Recall the use of different instruments used in Engineering Drawing and Importance of BIS and ISO codes.	Remembering (Level I)
CO2	Illustrate various types of mathematical curves and scale.	Understanding (Level II)
CO3	Classify different types of projection and Construct Orthographic projection of Point, Line, Plane and Solid.	Applying (Level III)
CO4	Construct Isometric Projection and Conversion of Orthographic view to Isometric view and vice-versa.	Applying (Level III)
CO5	Construct Engineering model in Drawing software(AutoCAD) and Compare it with conventional drawing.	Analyzing (Level IV)

Module No.	**Title of the Module**	**List of Experiments**	**CO**
1.	Introduction to Engineering Drawing	• Principles of Engineering Drawing and their significance, Usage of Drawing Instruments • Single stroke Vertical and Inclined Gothic Lettering	CO1
2.	Conic Sections	• Conic sections and Special Curves	CO2
3.	Orthographic Projections	• Projection of Point • Projection of Line • Projection of Plane	CO3
4.	Projections of Regular Solids	• Projection of Solid having axis perpendicular to Principal Plane • Projection of Solid having axis inclined to Principal Plane	CO3
5.	Sections and Sectional Views of Right Angular Solids	• Section of Polyhedron Parallel to Principal plane • Section of Polyhedron inclined to Principal plane	CO3
6.	Isometric Projections	• Isometric View of Solids	CO4
7.	Overview of Computer Graphics	• Demonstrating knowledge of theory of CAD software	CO5
8.	Annotations, layering & other functions	• Draw a Solid structure using Layer command	CO5

Evaluation Criteria

	Components	Maximum Marks
I.	TA (Attendance + D2D)	60 (10+50)
II.	Mid Sem Exam	20
III.	End Sem Exam	20
	Total	**100**

Recommended Reading material: Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)

1.	N.D. Bhatt, V.M. Panchal & P.R. Ingle, Engineering Drawing, Charotar Publishing House
2.	B. Agrawal & C.M. Agrawal, Engineering Graphics, TMH Publication
3.	K.L. Narayana & P. Kannaiah, Text book on Engineering Drawing, Scitech Publishers
4.	M.B. Shah & B.C. Rana, Engineering Drawing and Computer Graphics, Pearson Education